



WCFL



WCFL



WCFL

ENGINEERING REPORT

AM Partial Proof and
Monitor Points at WNRJ

Circleville, Ohio

June, 1993

COPYRIGHT 1993

E. HAROLD MUNN, JR. & ASSOCIATES, INC.
Broadcast Engineering Consultants
Coldwater, MI 49036

TABLE OF CONTENTS

1. Table of Contents
2. Certification of Engineer
3. Discussion of Report
4. Tabulation of Measured Fields and Limits
5. Figure 1,1A: Tabulation of 024° and 055° Measurements
6. Figure 2,2A: Tabulation of 095° and 138° Measurements
7. Figure 3,3A: Tabulation of 180° and 220° Measurements
8. Figure 4,4A: Tabulation of 253° and 284° Measurements
9. Figure 5,5A: Tabulation of 318° and 352° Measurements
10. Copy of WNRJ (Formerly WNRE) License Document

CERTIFICATION OF CONSULTANT

The firm of E. Harold Munn, Jr. & Associates, Inc., Broadcast Engineering Consultants, with offices at 100 Airport Drive, Coldwater, Michigan, has been retained for the purpose of preparing the technical data submitted in this report.

The data utilized in this report is based on field measurements or observations made by the undersigned, on the dates and times indicated in the report.

The report has been prepared by or under the direction of the undersigned, whose qualifications are a matter of record before the Federal Communications Commission.

I declare under penalty of perjury that the contents of this report are true and accurate to the best of my knowledge and belief.

E. Harold Munn, Jr. & Associates, Inc.

June 1, 1993

by Virgil M. Royer
Virgil M. Royer, Project Engineer
Wayne S. Reese, President

100 Airport Drive, Box 220
Coldwater, Michigan 49036-0220

(517) 278-7339

E. HAROLD MUNN, JR. & ASSOCIATES, INC.
Broadcast Engineering Consultants
Coldwater, MI 49036

DISCUSSION OF REPORT

This firm was retained to conduct a "partial" proof of performance on the antenna system of WNRJ, Circleville, Ohio. WNRJ is authorized operation on 1540 kHz, daytime only, with 1 kW nominal input power. A four (4) tower in-line antenna system is employed.

The AM directional antenna partial proof of performance measurements were taken in accordance with §73.154, and the data analyzed using the logarithmic average of the ratios of the field strength at the measurement points on each radial.

The resultant fields are tabulated in this report, along with the specified maximum permitted fields on each bearing. The data was ratioed against the 1974 complete proof of performance for the station.

The location of each measurement point was determined using full-scale 7.5' series topographic mapping in conjunction with the mapping supplied in the proof of performance. The monitor points specified in the station authorization were located by means of the map in the proof of performance, and the directions to the points listed in the station license.

The measurements were made in accordance with good engineering practice, using a Potomac Instruments AM Field Strength Meter, Model FIM-41, Serial No.1474. This meter was calibrated by the manufacturer April 14, 1992.

The measurements were made by Virgil M. Royer during regular operating hours, March 9 and 10, 1993, at the times indicated and tabulated.

The tabulated data in this report shows that all the specified monitor point limits are exceeded. It must be concluded that the operation of the WNRJ antenna system is not in conformance with the terms of the station authorization. A copy of the license document is included in this report.

Another series of monitor point measurements were made during regular operating hours May 28, 1993, at the times indicated and tabulated. An initial set of monitor point readings was made between 0740 and 0822 am, with another set of readings made between 1003 and 1032 am. The readings were made by Virgil M. Royer, using the same Potomac Instrument Field Strength meter, Model FIM-41, Serial Number 1474 which was employed for the partial proof of performance made in March, 1993.

These monitor point readings are tabulated as part of this report, and are included with the Tabulation of Measured Fields and Limits.

None of the monitor point readings falls within the specified limits defined in the WNRJ license document.

CONCLUSION: On each FCC prescribed limit azimuth, and at each specified monitor point the measurements indicate that WNRJ was operating on March 9 and 10, 1993, with antenna operating parameters beyond the specifications of the station license. The gross deviations at the monitor points on May 28, 1993 confirm that WNRJ continues to operate with the directional antenna system beyond the permitted specifications.

The excessive radiation on the bearings 318°, 352°, and 023° spans the arc in the direction of the Columbus, Ohio, metropolitan area.

TABULATION OF MEASURED FIELDS AND LIMITS

WNRJ, CIRCLEVILLE, OHIO

<u>AZIMUTH</u>	<u>1974 - DA</u> <u>mV/m</u>	<u>1993/1974</u> <u>RATIO</u>	<u>1993 - DA</u> <u>mV/m</u>	<u>LIMIT</u> <u>mV/m</u>
023	15.0	15.7370	236.05	24.2
055	21.0	14.4323	303.07	(37.0)
095	320.0	0.3494	111.8	(334.0)
138	450.0	0.4541	204.3	(492.0)
180	320.0	0.4553	145.7	(344.0)
220	27.0	10.9608	295.94	(37.9)
253	18.0	15.1166	272.09	24.0
284	16.0	11.9230	190.77	25.8
318	35.0	6.6018	231.06	45.0
352	20.0	6.7915	135.8	24.0

NOTE: Fields are in mV/m/mile Limits in () are standard pattern calculations

MONITOR POINTS

<u>Azimuth</u>	<u>1974</u> <u>mV/m</u>	<u>Licensed</u> <u>Limit</u> <u>mV/m</u>	<u>March</u> <u>1993</u> <u>mV/m</u>	<u>May</u> <u>1993</u> <u>mV/m</u>	<u>Time</u>	<u>mV/m</u>	<u>Time</u>
023°	7.8	8.5	60.0	59.0	0750am	60.0	1032am
253	2.35	2.6	37.0	33.5	0807	32.5	1013
284	2.6	2.9	25.0	30.0	0814	31.0	1010
318	2.65	3.0	16.2	13.0	0822	13.5	1003
352	4.7	5.2	35.5	39.5	0740	39.0	1026

E. HAROLD MUNN, JR. & ASSOCIATES, INC.
Broadcast Engineering Consultants
Coldwater, MI 49036

FIGURE 1
TABULATION OF FIELD STRENGTH MEASUREMENTS

STATION : WNRJ
FREQUENCY: 1540 KHZ
BEARING : 023 DEGREES TRUE

POINT	1974 DIRECTIONAL			*	1993 DIRECTIONAL			#DISTANCE#	ARITH.*
* ** *	MV/M	TIME	DATE	*	MV/M	TIME	DATE	MI	* RATIO *
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
5	5.000	1350	09-25-74		59.000	1022	03-09-93	2.20	11.6000
6 M.P.	7.800	1352	09-26-74		60.000	1020	03-09-93	2.25	7.6923
7	4.000	1356	09-26-74		45.000	1212	03-09-93	2.93	11.2500
8	1.850	1405	09-26-74		32.000	1215	03-09-93	3.44	17.2973
9	1.750	1411	09-26-74		27.000	1218	03-09-93	4.44	15.4286
10	1.630	1414	09-26-74		17.500	1221	03-09-93	4.90	10.7362
11	1.370	1420	09-26-74		11.000	1224	03-09-93	6.24	8.0292
12	1.000	1423	09-26-74		10.000	1229	03-09-93	8.07	10.0000
13	0.250	1434	09-26-74		9.000	1234	03-09-93	9.40	32.0000
14	0.230	1438	09-26-74		5.900	1238	03-09-93	10.80	25.6522
15	0.075	1446	09-26-74		5.800	1243	03-09-93	11.80	77.3333

ARITHMETIC RATIO 20.6381
LOGARITHMIC RATIO 15.7370

FIGURE 1A
TABULATION OF FIELD STRENGTH MEASUREMENTS

STATION : WNRJ
FREQUENCY: 1540 KHZ
BEARING : 055 DEGREES TRUE

POINT	1974 DIRECTIONAL			*	1993 DIRECTIONAL			#DISTANCE#	ARITH.*
* ** *	MV/M	TIME	DATE	*	MV/M	TIME	DATE	MI	* RATIO *

FIGURE 2
TABULATION OF FIELD STRENGTH MEASUREMENTS

STATION : WNRJ
FREQUENCY: 1540 KHZ
BEARING : 095 DEGREES TRUE

POINT	1974 DIRECTIONAL			*	1993 DIRECTIONAL			*DISTANCE*	ARITH.*
* ** *	MV/M	TIME	DATE	*	MV/M	TIME	DATE	* MI	* RATIO *
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
6	136.000	1450	09-27-74		62.000	1013	03-10-93	1.80	0.4559
7	102.000	1446	09-27-74		35.000	1010	03-10-93	2.30	0.3529
8	76.000	1442	09-27-74		21.000	1007	03-10-93	3.00	0.2763
9	73.000	1440	09-27-74		20.000	1005	03-10-93	3.27	0.2740
10	51.000	1436	09-27-74		17.000	1002	03-10-93	3.92	0.3333
11	32.000	1426	09-27-74		11.600	0955	03-10-93	4.95	0.3625
12	27.700	1420	09-27-74		10.500	0951	03-10-93	5.48	0.3791
13	23.700	1416	09-27-74		10.000	0948	03-10-93	6.47	0.4219
14	20.000	1411	09-27-74		6.300	0943	03-10-93	7.34	0.3400
15	14.700	1404	09-27-74		5.100	0939	03-10-93	8.43	0.3469
16	16.800	1400	09-27-74		5.500	0936	03-10-93	8.93	0.3274
17	9.600	1350	09-27-74		3.500	0929	03-10-93	10.40	0.3646

ARITHMETIC RATIO 0.3529
LOGARITHMIC RATIO 0.3494

FIGURE 2A
TABULATION OF FIELD STRENGTH MEASUREMENTS

STATION : WNRJ
FREQUENCY: 1540 KHZ
BEARING : 138 DEGREES TRUE

POINT	1974 DIRECTIONAL			*	1993 DIRECTIONAL			*DISTANCE*	ARITH.*
* ** *	MV/M	TIME	DATE	*	MV/M	TIME	DATE	* MI	* RATIO *
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
10	202.000	1510	09-27-74		90.000	0826	03-10-93	1.92	0.4455
11	140.000	1514	09-27-74		72.000	0829	03-10-93	2.25	0.5143
12	147.000	1516	09-27-74		72.000	0831	03-10-93	2.43	0.4898
13	135.000	1519	09-27-74		62.000	0834	03-10-93	2.64	0.4593
14	100.000	1108	09-28-74		55.000	0838	03-10-93	3.05	0.5500
15	80.000	1113	09-28-74		38.000	0842	03-10-93	3.50	0.4750
16	70.000	1118	09-28-74		30.000	0846	03-10-93	4.36	0.4286
17	54.000	1122	09-28-74		25.000	0850	03-10-93	4.90	0.4630
18	41.000	1129	09-28-74		21.000	0855	03-10-93	5.80	0.5122
19	35.000	1136	09-28-74		14.500	0900	03-10-93	6.92	0.4143
20	30.300	1144	09-28-74		11.500	0905	03-10-93	8.23	0.3795

FIGURE 3
TABULATION OF FIELD STRENGTH MEASUREMENTS

STATION : WNRJ
FREQUENCY: 1540 KHZ
BEARING : 180 DEGREES TRUE

POINT	1974 DIRECTIONAL	*	1993 DIRECTIONAL	*DISTANCE*	ARITH.*
* ** *	MV/M TIME DATE	*	MV/M TIME DATE	* MI	* RATIO *
7	110.000 1512 09-24-74	*	55.000 0815 03-10-93	1.96	0.5000
8	68.000 1615 09-24-74	*	29.000 0810 03-10-93	2.65	0.4265
9	56.500 1519 09-24-74	*	25.000 0805 03-10-93	2.93	0.4425
10	35.000 1523 09-24-74	*	22.000 1726 03-09-93	3.60	0.6286
11	39.000 1527 09-24-74	*	20.500 1724 03-09-93	3.90	0.5256
12	21.000 1511 09-25-74	*	11.000 1721 03-09-93	5.32	0.5238
13	23.000 1507 09-25-74	*	10.000 1719 03-09-93	5.54	0.4348
14	11.700 1501 09-25-74	*	5.500 1714 03-09-93	7.44	0.4701
15	10.000 1455 09-25-74	*	3.900 1707 03-09-93	9.30	0.3900
16	6.800 1447 09-25-74	*	2.000 1700 03-09-93	11.00	0.2941

ARITHMETIC RATIO 0.4636
LOGARITHMIC RATIO 0.4553

FIGURE 3A
TABULATION OF FIELD STRENGTH MEASUREMENTS

STATION : WNRJ
FREQUENCY: 1540 KHZ
BEARING : 220 DEGREES TRUE

POINT	1974 DIRECTIONAL	*	1993 DIRECTIONAL	*DISTANCE*	ARITH.*
* ** *	MV/M TIME DATE	*	MV/M TIME DATE	* MI	* RATIO *
5	12.200 1519 09-24-74	*	60.000 1538 03-09-93	1.35	4.9180
6	6.200 1508 09-24-74	*	35.000 1542 03-09-93	2.93	5.6452
7	1.600 1504 09-24-74	*	24.500 1545 03-09-93	3.77	15.3125
8	1.150 1501 09-24-74	*	21.000 1547 03-09-93	4.26	18.2609
9	2.300 1458 09-24-74	*	13.500 1549 03-09-93	4.39	8.0435
10	2.050 1201 09-25-74	*	15.500 1551 03-09-93	5.65	7.5610
11	1.500 1210 09-25-74	*	10.000 1559 03-09-93	7.10	6.6667
12	0.800 1213 09-25-74	*	7.300 1604 03-09-93	8.90	9.1250
13	0.260 1227 09-25-74	*	5.100 1610 03-09-93	10.40	23.4615
14	0.140 1233 09-25-74	*	5.200 1614 03-09-93	11.80	37.1429

ARITHMETIC RATIO 13.6137
LOGARITHMIC RATIO 10.9603

FIGURE 4
TABULATION OF FIELD STRENGTH MEASUREMENTS

STATION : WNRJ									
FREQUENCY: 1540 KHZ									
BEARING : 253 DEGREES TRUE									
POINT	1974 DIRECTIONAL			*	1993 DIRECTIONAL			*DISTANCE*	ARITH.*
* ** *	MV/M	TIME	DATE	*	MV/M	TIME	DATE	* MI	* RATIO *

6 M.P.	2.350	1227	09-24-74		37.000	1045	03-09-93	2.80	15.7447
7	1.900	1229	09-24-74		36.000	1047	03-09-93	2.85	18.9474
8	2.350	1232	09-24-74		35.000	1048	03-09-93	2.94	15.3191
9	1.130	1237	09-24-74		25.000	1524	03-09-93	3.68	22.1239
10	0.920	1243	09-24-74		13.500	1520	03-09-93	5.07	20.1087
11	1.300	1249	09-24-74		11.000	1515	03-09-93	6.24	8.4615
12	0.500	1256	09-24-74		9.500	1511	03-09-93	8.17	19.0000
13	0.490	1259	09-24-74		7.000	1508	03-09-93	8.58	14.2857
14	0.560	1302	09-24-74		8.500	1506	03-09-93	8.80	15.1786
15	0.910	1310	09-24-74		8.000	1503	03-09-93	10.40	8.7912
									ARITHMETIC RATIO 15.7961
									LOGARITHMIC RATIO 15.1166

FIGURE 4A
TABULATION OF FIELD STRENGTH MEASUREMENTS

STATION : WNRJ									
FREQUENCY: 1540 KHZ									
BEARING : 284 DEGREES TRUE									
POINT	1974 DIRECTIONAL			*	1993 DIRECTIONAL			*DISTANCE*	ARITH.*
* ** *	MV/M	TIME	DATE	*	MV/M	TIME	DATE	* MI	* RATIO *

3 M.P.	2.600	1531	09-24-74		25.000	1059	03-09-93	2.82	9.6154
4	1.900	1535	09-24-74		26.000	1418	03-09-93	3.52	13.6842
5	1.400	1540	09-24-74		19.500	1420	03-09-93	3.84	13.9286
6	1.530	1543	09-24-74		14.500	1421	03-09-93	4.20	9.4771
7	1.850	1550	09-24-74		12.000	1424	03-09-93	4.48	6.4865
8	0.580	1005	09-25-74		6.800	1432	03-09-93	7.60	11.7241
9	0.410	1008	09-25-74		8.000	1433	03-09-93	7.82	19.5122
10	0.540	1010	09-25-74		6.600	1434	03-09-93	8.07	12.2222
11	0.245	1020	09-25-74		4.000	1439	03-09-93	9.93	16.3265
12	0.255	1025	09-25-74		3.800	1441	03-09-93	10.70	14.9020
13	0.310	1029	09-25-74		2.900	1444	03-09-93	11.40	9.0323
									ARITHMETIC RATIO 12.4465
									LOGARITHMIC RATIO 11.9230

FIGURE 5
TABULATION OF FIELD STRENGTH MEASUREMENTS

STATION : WNRJ
FREQUENCY: 1540 KHZ
BEARING : 318 DEGREES TRUE

POINT	1974 DIRECTIONAL	*	1993 DIRECTIONAL	*DISTANCE*	ARITH.*
* *** *	MV/M TIME DATE	*	MV/M TIME DATE	* MI	* RATIO *
6	3.800 1037 09-26-74	*	24.000 1110 03-09-93	3.25	6.3158
7	M.P. 2.650 1052 09-26-74	*	15.200 1116 03-09-93	5.08	6.1132
8	1.920 1055 09-26-74	*	13.000 1119 03-09-93	5.48	6.7708
9	1.570 1100 09-26-74	*	6.500 1122 03-09-93	6.86	4.1401
10	1.720 1103 09-26-74	*	7.500 1124 03-09-93	7.45	4.3605
11	1.100 1107 09-26-74	*	8.000 1128 03-09-93	9.23	7.2727
12	1.020 1110 09-26-74	*	7.000 1130 03-09-93	9.75	6.8627
13	0.970 1115 09-26-74	*	5.700 1135 03-09-93	11.40	6.9072
14	0.720 1120 09-26-74	*	5.200 1141 03-09-93	13.20	8.6111
15	0.490 1125 09-26-74	*	5.500 1144 03-09-93	15.20	11.2245

ARITHMETIC RATIO 6.8579
LOGARITHMIC RATIO 6.6018

FIGURE 5A
TABULATION OF FIELD STRENGTH MEASUREMENTS

STATION : WNRJ
FREQUENCY: 1540 KHZ
BEARING : 352 DEGREES TRUE

POINT	1974 DIRECTIONAL	*	1993 DIRECTIONAL	*DISTANCE*	ARITH.*
* *** *	MV/M TIME DATE	*	MV/M TIME DATE	* MI	* RATIO *
6	7.800 1320 09-26-74	*	55.000 1014 03-09-93	1.77	7.0513
7	7.500 1318 09-26-74	*	50.000 1012 03-09-93	2.10	6.6667
8	6.400 1315 09-26-74	*	45.000 1010 03-09-93	2.15	7.0312
9	M.P. 4.700 1313 09-26-74	*	35.500 1006 03-09-93	2.83	7.5532
10	5.600 1310 09-26-74	*	33.000 1003 03-09-93	3.17	5.8929
11	5.500 1307 09-26-74	*	30.000 0959 03-09-93	3.48	5.4545
12	4.200 1304 09-26-74	*	22.000 0956 03-09-93	4.20	5.2381
13	2.900 1300 09-26-74	*	19.000 0953 03-09-93	5.22	6.5517
14	2.350 1255 09-26-74	*	15.000 0947 03-09-93	5.90	6.3830
15	1.100 1251 09-26-74	*	10.000 0940 03-09-93	6.80	9.0909
16	1.020 1247 09-26-74	*	7.500 0933 03-09-93	8.35	7.3529
17	0.720 1242 09-26-74	*	5.900 0925 03-09-93	9.40	8.1944

ARITHMETIC RATIO 6.8717
LOGARITHMIC RATIO 6.7915

UNITED STATES OF AMERICA
FEDERAL COMMUNICATIONS COMMISSION

STANDARD BROADCAST STATION LICENSE

File No.: **BL-13,858**
Call Sign: **WNRZ**
Official No. **4975**

Subject to the provisions of the Communications Act of 1934, subsequent Acts, and Treaties, and Commission Rules made thereunder, and further subject to conditions set forth in this license, the LICENSEE

CIRCLEVILLE, BROADCASTING COMPANY

is hereby authorized to use and operate the radio transmitting apparatus hereinafter described for the purpose of broadcasting for the term ending 3 a.m. Local Time **October 1, 1976**

The licensee shall use and operate said apparatus only in accordance with the following terms:

1. On a frequency of **1540** kHz.
2. With nominal power of **-** watts nighttime and **1 kilo** watts daytime,
with antenna input power of **-** watts **-** directional [**-** current **-** amperes
antenna nighttime [**-** resistance **-** ohms,
and antenna input power of **1080** watts **-** directional [**common point** current **4.6** amperes
antenna daytime [**common point** resistance **51.0** ohms
3. Hours of operation: **Daytime as follows:**
Jan. 7:45am to 5:30pm; Feb. 7:30am to 6:00pm;
Mar. 6:45am to 6:45pm; Apr. 6:00am to 7:15pm;
May 5:15am to 7:45pm; June 5:00am to 8:00pm;
July 5:15am to 8:00pm; Aug. 5:45am to 7:30pm;

File No.: BL- 13,858

Call Sign: W N R E

Date: 6-17-75

1. DESCRIPTION OF DIRECTIONAL ANTENNA SYSTEM

DA-D

No. and Type of Elements: Four uniform cross section, series excited vertical steel towers.

Height above Insulators: 180' (101°)

Overall Height: 185'

Spacing and Orientation: Adjacent elements are spaced 177.5' (100°) on a line bearing 318° true.

Non-Directional Antenna: None used.

Ground System consists of 120-160' equally spaced buried copper radials, plus 120-50' interspaced buried copper radials, about the base of each tower. Radials are shortened and bonded to transverse copper straps midway between towers.

2. THEORETICAL SPECIFICATIONS

	Tower	NW(#4)	NC(#3)	SC(#2)	SE(#1)
Phasing:					
	Day	+138°	0°	-140°	+79°
Field Ratio:					
	Day	0.55	1.0	0.78	0.25

3. OPERATING SPECIFICATIONS

Phase Indication°:					
	Day	136°	0°	-139°	75°

Field measuring equipment shall be available at all times and, the field intensity at each of the monitoring points shall be measured at least once every seven days and an appropriate record kept of all measurements so made.

DIRECTION OF AND FIELD INTENSITY AT MONITORING POINTS:

Direction of 23° true North. From the junction of the transmitter site driveway and U. S. 23, drive north on U. S. 23 approximately 2.3 miles to Red Bridge East Ringold Road. Turn right and drive approximately 1.3 miles (0.5 mile beyond the junction with Ward Road) to the gravel driveway on the left leading to a farm building. The monitor point is in the driveway halfway between the road and the building. The distance to the point is 2.25 miles. The field intensity measured at this point should not exceed 8.5 mV/m.

Direction of 253° true North. From the driveway, drive south on U. S. 23 approximately 2.3 miles and bear right on the exit to U. S. 22 west. Follow U. S. 22 west approximately 1.1 miles to the junction with state route 56. Bear right on route 56 and drive 1.95 miles to state route 104. Turn right and drive approximately 1.15 miles to a wide gravel area on the right and the monitor point on the right just south of a bridge and a gravel lane. The distance to the point is 2.80 miles. The field intensity measured at this point should not exceed 2.6 mV/m.

Direction of 284° true North. From the driveway, drive south on U. S. 23 approximately 2.3 miles and bear right on the exit to U. S. 22 west. Follow U. S. 22 west approximately 1.1 miles and bear right on S. R. 56. Follow S. R. 56, 1.95 miles to S. R. 104. Turn right and drive north approximately 2.55 miles to the monitor point on the right side just north of Rural Box 345 near farm driveway. The distance to the point is 2.82 miles. The field intensity measured at this point should not exceed 2.9 mV/m.

Direction of 318° true North. From the driveway, drive south on U. S. 23, approximately 2.3 miles and bear right on the exit to U. S. 22 west. Follow U. S. 22 west approximately 1.1 miles and bear right on S. R. 56, 1.95 miles to S. R. 104. Turn right and drive north approximately 6.1 miles to the road junction on the left (Van Meter Road). Turn left and drive 0.7 mile to the monitor point on the road near a fence line on the right. The distance to the point is 5.08 miles. The field intensity measured at this point should not exceed 3.0 mV/m.

Direction of 352° true North. From the driveway, drive left on U. S. 23 approximately 2.9 miles to a road on the right leading to Little Walnut. Turn right and follow this road 0.18 mile to a street on the right. Turn right and proceed approximately 0.2 mile to the monitor point at the end of the street near Box #130. The distance to the point is 2.83 miles. The field intensity measured at this point should not exceed 5.2 mV/m.

OF 19
SIF.

EXHIBIT EE

ENGINEERING REPORT

FM MEASUREMENTS

At WHT

105.7 MHz

Marysville, Ohio

June, 1993

COPYRIGHT 1993

E. HAROLD MUNN, JR. & ASSOCIATES, INC.
Broadcast Engineering Consultants
Coldwater, MI 49036

CERTIFICATION OF CONSULTANT

The firm of E. Harold Munn, Jr. & Associates, Inc., Broadcast Engineering Consultants, with offices at 100 Airport Drive, Coldwater, Michigan, has been retained for the purpose of preparing the technical data submitted in this report.

The data utilized in this report is based on field measurements or observations made by the undersigned, on the dates and times indicated in the report.

The report has been prepared by or under the direction of the undersigned, whose qualifications are a matter of record before the Federal Communications Commission.

I declare under penalty of perjury that the contents of this report are true and accurate to the best of my knowledge and belief.

E. Harold Munn, Jr. & Associates, Inc.

June 2, 1993

by Virgil M. Royer
Virgil M. Royer, Project Engineer
Wayne S. Reese, President

100 Airport Drive, Box 220
Coldwater, Michigan 49036-0220

(517) 278-7339

E. HAROLD MUNN, JR. & ASSOCIATES, INC.
Broadcast Engineering Consultants
Coldwater, MI 49036

DISCUSSION

This firm was retained to check the occupied bandwidth of FM Station WWHT, Marysville, Ohio, to determine if the facility is operating in conformance with the requirements of §73.317.

WWHT is authorized operation on 105.7 MHz, with an effective radiated power of 6 kW.

All measurements were made at an unobstructed location about 9.5 km from the transmitter site. The location was in the parking lot of the Marysville VFW hall, southeast of the Marysville airport.

The spectrum data was obtained using a Tektronix Model 2712 Spectrum Analyzer. The RF was provided to the analyzer from a calibrated antenna. The antenna elements were adjusted to the specified length for the frequency to be observed, and the antenna oriented for maximum field into the analyzer.

The analyzer settings are shown on the plot of the stored signal, included in this report as Figure 1. These measurements were made May 27, 1993. The observation period began at 21:38:00, EST, and ended at the time shown on the display plot of 21:42:53 EST.

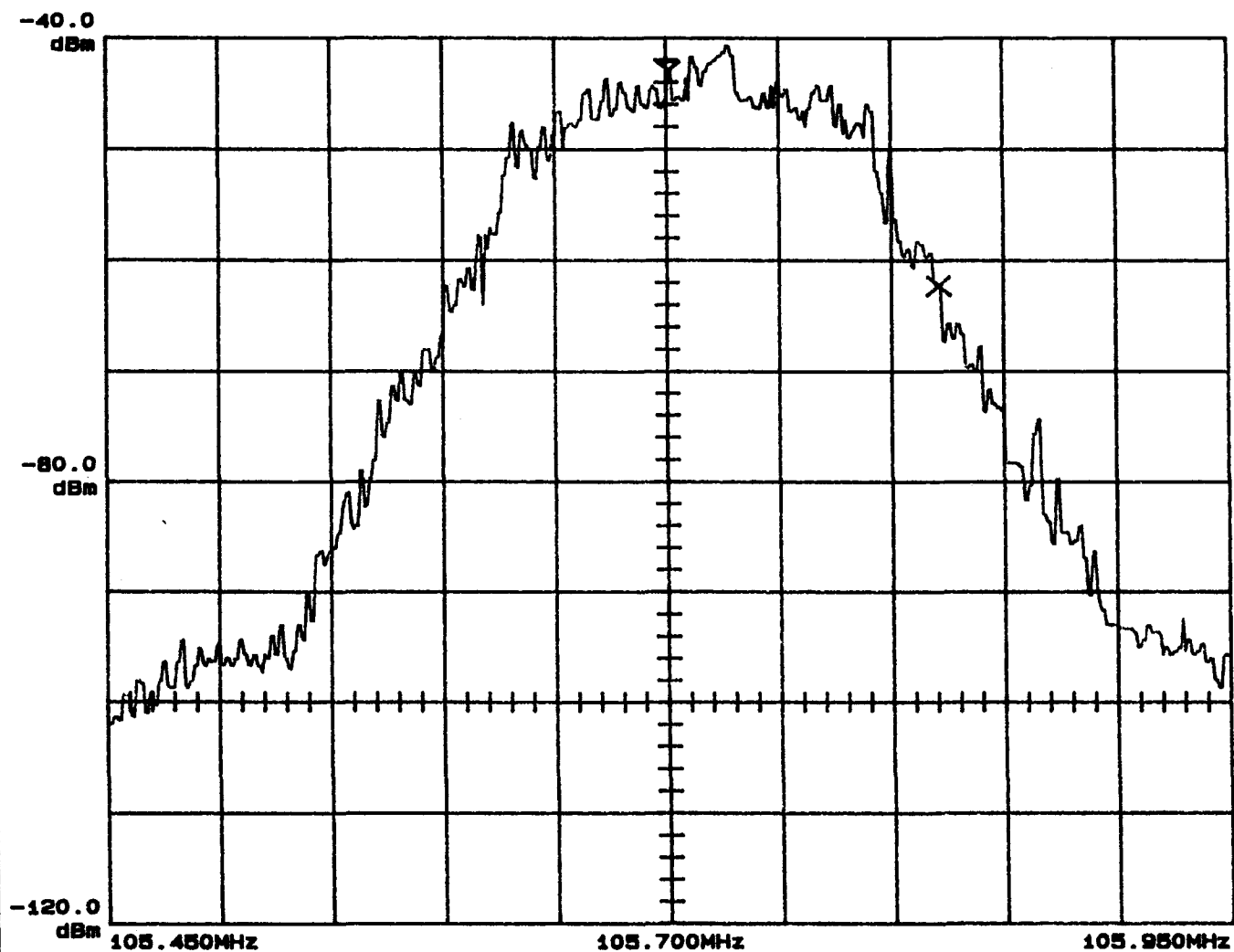
The "delta" marker feature was then employed to determine the degree of sideband attenuation. At +120 kHz from the center reference, the attenuation is -19.2 dB below the carrier level. This is in violation of §73.317(b), which requires that emissions between 120 kHz and 240 kHz from the carrier be attenuated at least 25 dB.

Figure 2 shows the WWHT spectrum as measured March 10, 1993, at the same location, using the same equipment and settings as those of Figure 1. At +120 kHz from the center reference, the attenuation was -20.7 dB below the carrier level.

This data may be compared with Figure 3, which is a plot made at the same location, using the same equipment, September 11, 1992. At that time, the WWHT plot shows the 120 kHz level to be -22.4 dB below the carrier reference level.

CONCLUSION: Based on the data, it is obvious that Station WWHT has operated with overmodulation on a consistent basis in contravention of §73.317(b).

A - WWHT MARYSVILLE OHIO



Tek
2712

105.700MHz
-40.0dBm
50.0kHz/
3kHz RBW

ATTN 0dB
VF 3kHz
10 dB/
D 120kHz
D -19.2dB

TIME: 100 ms/DIV

X -- MARKER 1
V -- MARKER 2

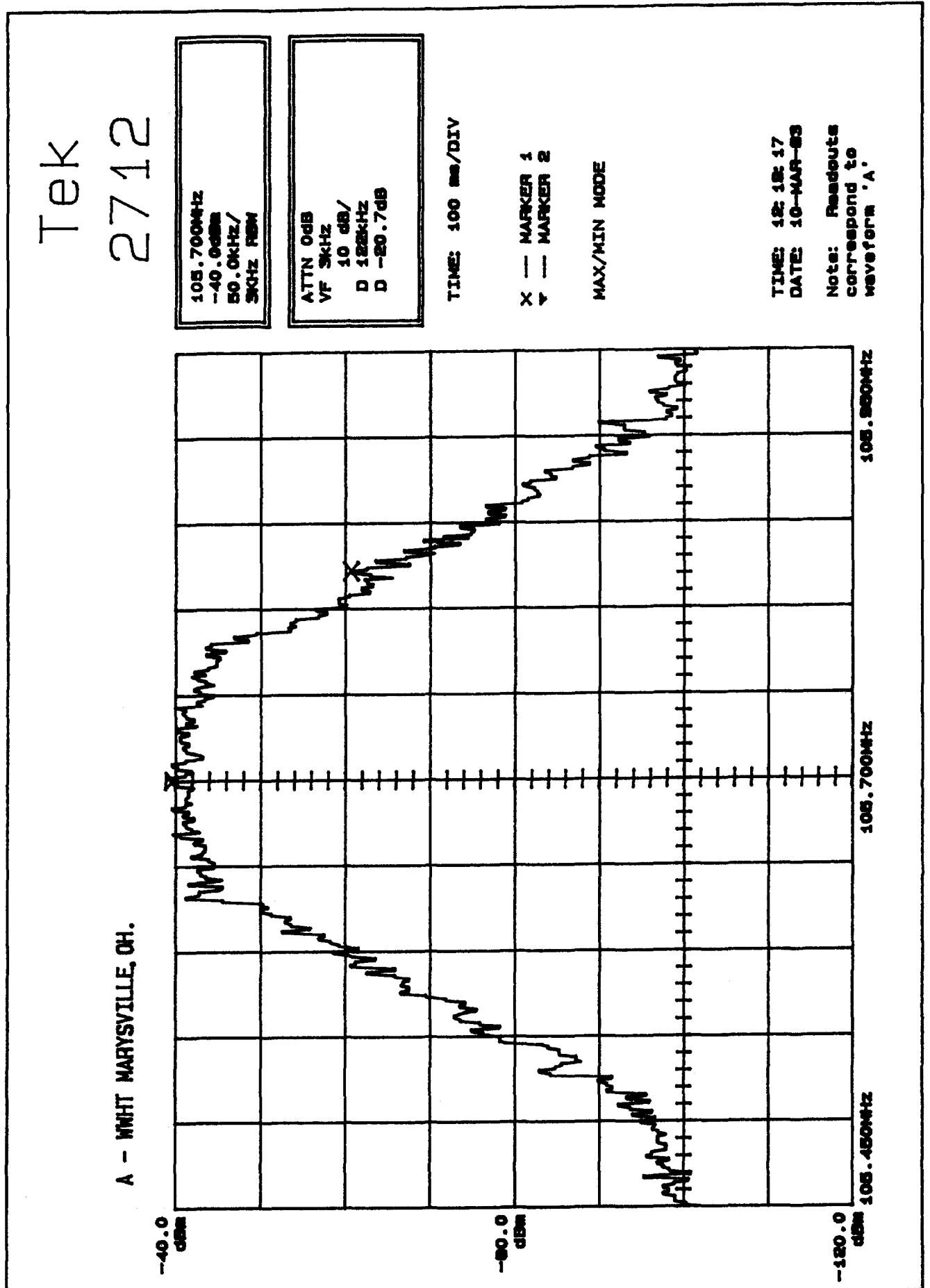
MAX/MIN MODE

TIME: 21:42:53
DATE: 27-MAY-93

Note: Readouts
correspond to
waveform 'A'

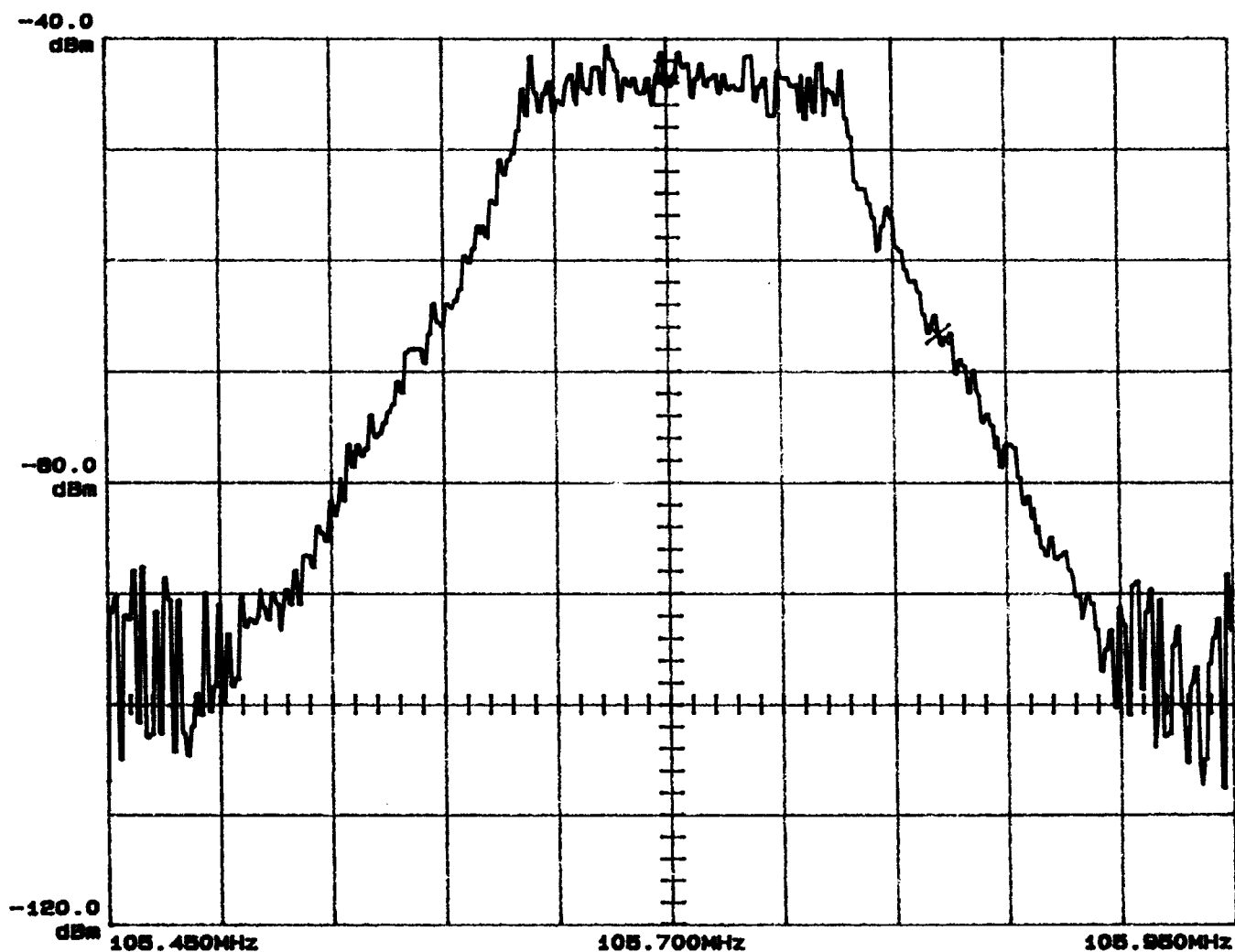
FIGURE 1

FIGURE 2



Tek
2712

A - WWHT MARYSVILLE OHIO



105.700MHz
-40.0dBm
50.0kHz/
3kHz RBW

ATTN 0dB
VF 3kHz
10 dB/
D 120kHz
D -22.4dB

TIME: 100 ms/DIV

X -- MARKER 1
V -- MARKER 2

MAX/MIN MODE

TIME: 16:24:57
DATE: 11-SEP-82

Note: Readouts
correspond to
waveform 'A'

FIGURE 3

EXHIBIT FF

**DECLARATION
OF
PAUL J. BEICKELMAN**

DECLARATION

I, Paul J. Beickelman, do hereby declare and state:

On May 28, 1993, I travelled to Marysville, Ohio for the purpose of reviewing the public inspection file of Station WWHT (FM), Marysville, Ohio. I went first to 118 North Main Street, Marysville, Ohio, which is identified in the WWHT license (Attachment 1 hereto) as the station's main studio address. In fact, the business located at 118 North Main Street is Olsten Services, a temporary employment agency.

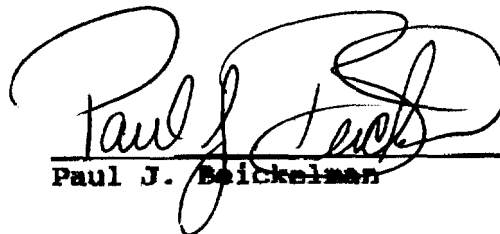
At 9:42 a.m. I entered the offices of Olsten Services and asked the woman in the office if this was the location of the studios of WWHT. She said that there was no radio station there but that Station WUCO was located nearby.

Approximately 15 minutes later I entered the offices of Station WUCO at 103 South Main Street in Marysville. I was greeted by a woman and asked her if these were the studios of WWHT. She replied that she was new there and would get someone else. Another woman came out of an office and I asked her if these were the studios of WWHT. She said yes. I then asked her if there was any equipment for Station WWHT there. She replied that there were not any on-air studios there, just a phone line and the public inspection file. The studios, she said, were located on Discovery Boulevard in Dublin, Ohio. I then responded by saying words to the effect that then these aren't the studios for WWHT. She responded, "Not really."

I then asked to see the public inspection file of WWHT. I spent approximately one hour reviewing the file. My review revealed the following:

1. The public inspection file did not contain any "problem/programs" list for the first quarter of 1993.
2. The public inspection file did not contain an Annual Employment Report (FCC Form 395-B) for either 1992 or 1993.
3. The most recent Ownership Report (FCC Form 323) for the station in the public inspection file was dated May 9, 1990 and was attached to a letter dated May 10, 1990 to Donna R. Searcy of the Federal Communications Commission from the law firm of Haley, Bader & Potts. No subsequent letter certifying to the accuracy of that 1990 report was in the file.

I declare, under penalty of perjury, that the foregoing is true and correct. Signed this 2d day of June, 1993.



Paul J. Beickelman

ATTACHMENT 1

**LICENSE FOR STATION WWHT (FM)
MARYSVILLE, OHIO**